The Knowledge, Attitude and Practice Egarding Artificial Intelligence among Nursing Students

Ms. Sharon Raichal Jai[1], Ms Farisha.P[1], Ms Shivani[1], Ms Charutha Bineesh[1], Mr Ihsanul Haq[1], Mrs. Sruthi Tp[2] Prof. Shine Thomas[2]

[1]BSc Nursing students, KMCT College of Nursing, Kozhikode, Kerala, India

[2]Asst Professor, KMCT College of Nursing & Vice Principal, KMCT College of Nursing, Kozhikode, Kerala, India

ABSTRACT

This descriptive study assessed knowledge, attitudes, and practices related to artificial intelligence (AI) among General Nursing and Midwifery (GNM) students at KMCT School of Nursing. Using a non-probability convenience sampling method, 100 GNM students completed a baseline proforma with demographic data, a close-ended self-administered questionnaire for knowledge, and Likert scales for attitudes and practices. Data analysis employed descriptive and inferential statistics. Results indicated that most students (majority) possessed adequate knowledge of AI, exhibited moderate attitudes toward it, and demonstrated moderate AI practices. Significant associations existed between knowledge levels and selected demographic variables, including academic year and monthly family income.

Keywords: artificial intelligence, nursing students, knowledge, attitude, practice, healthcare

INTRODUCTION

Alan Turing presented the concept of using computers to simulate intelligent behavior and critical thinking in 1950. Artificial intelligence (AI) is the research and creation of software applications that can carry out tasks that usually necessitate human intelligence, such as speech recognition, judgment, and language processing. Moreover, all healthcare practitioners will be impacted by the revolutionary technology known as AI.

Furthermore, an AI system can aid in reducing unavoidable procedure errors in human nursing medicine. Research emphasizing potential developments of AI in nursing practice has expanded in recent years. Also, implementing AI and machine learning can enhance interprofessional collaboration, prevent accidents, improve nursing management, and improve nursing performance.

Nursing education has traditionally focused on clinical skills and patient care, with limited emphasis on digital health technologies like AI. Studies suggest that many nursing students and professionals have low to moderate awareness of AI's role in healthcare, leading to potential gaps in preparedness for future AI-driven medical environments. Without proper training, nurses may struggle to adapt to AI tools, affecting patient safety and care quality.

Artificial intelligence's application in nursing demonstrates its unique advantages. It can help optimize nursing procedures, improve nursing practice efficiency, and facilitate precision nursing. AI can efficiently analyze large amounts of complex data to help diagnose various medical conditions and reduce the workload of healthcare workers. Artificial intelligence saves time, energy, and is also easily accessible for all.

Many countries have studied the perceptions and attitudes of medical students, healthcare professionals, and patients toward the use of AI in the medical field. Many studies have demonstrated positive attitudes toward AI; in contrast, controversial perceptions regarding AI have also been reported. However, few studies have investigated the perceptions and attitudes of medical students and healthcare workers toward AI's application in nursing and reported surveys on ethical research. Because the development of AI in nursing is still in its

infancy, advantages and problems exist in the field. This study aimed to investigate the attitudes and knowledge of nursing students on AI in nursing, which could provide insight into developing strategies for improving AI's application in the nursing field.

Problem statement

A descriptive study to assess the knowledge, attitude and practice regarding artificial intelligence among nursing students in selected nursing college Kozhikode.

Objectives

- To assess the knowledge regarding artificial intelligence among nursing students.

- To assess attitude towards artificial intelligence among nursing students.

- To assess practice of AI tools and its application among nursing students.

- To determine the association between selected demographic variables and knowledge regarding artificial intelligence among nursing students.

Hypothesis

H_1: There is a significant association between the level of knowledge regarding artificial intelligence and selected demographic variables among nursing students.

METHODOLOGY

Research Approach : Quantitative research approach.

Research Design : Non-experimental research design (descriptive design).

Population : Nursing students, Kozhikode.

Sample : 100 General Nursing and Midwifery students of KMCT school of nursing, Manassery.

Sampling technique : Non-probability convenient sampling technique.

Sampling criteria

A- Inclusive criteria

- Students who are willing to participate.

- Students available during the time of data collection.

- Both male and female nursing students.

B-exclusion criteria

- Students who are not willing to participate.

- Absentees during data collection.

Setting of the study: KMCT School of Nursing, Manassery, Kozhikode, Kerala.

Variables

Research variables: Knowledge, Attitude and Practice regarding AI.

Demographic variables: Age, gender, year of study, prior knowledge or exposure to AI, type of AI tool and monthly family income.

Tool

Section A- Demographic data.

It consists of 6 questions to collect gender, year of study, prior knowledge or exposure to AI, type of AI tool and monthly family income.

Section B – Self structured questionnaire.

It consists of 10 questions to assess the knowledge of Artificial Intelligence among nursing students.

Section C – Likert scale.

It consists of 10 items to assess the attitude of Artificial Intelligence among nursing students.

Section D- Likert scale.

It consists of 10 items to assess the practice of Artificial Intelligence among nursing students.

Data collection procedure.

Data collection commenced following approval from the institutional ethics committee and permissions obtained from the principal and class coordinators at KMCT School of Nursing. Informed consent was secured from all participants prior to their involvement. The research instruments were administered electronically via Google Forms, with sufficient time allocated for participants to complete all questions.

Ethical considerations.

The research proposal was presented to the research committee at KMCT College of nursing, where approval was obtained. ethical clearance for the study was secured from the KMCT ethics committee. informed consent was subsequently obtained from all participants.

RESULTS

Table 1: Frequency and percentage distribution of the sample characteristics.

N=100

Sl No	Demographic Variables	Frequency (F)	Percentage (%)
1	Age 18-20 21-23 >24	68 24 8	68% 24% 8%
2	Gender Male Female Prefer Not To Say	21 79 0	21% 79% 0%

3	Academic Year 1st Year 2nd Year 3rd Year	38 39 23	38% 39% 23%
4	Previous Experience In Using Ai Tool Yes No	89 11	89% 11%
5	Type Of Ai Tool Used Chatgpt Gemini Deepseek Meta Ai Others	81 22 4 74 6	81% 22% 4% 74% 6%
6	Monthly Family Income <10000 10001-20000 20001-30000 >30000	41 31 13 15	41% 31% 13% 15%

Table 1 illustrates the demographic profile of General Nursing and Midwifery students at KMCT School of Nursing. The majority were aged 18–20 years (68%), female (79%), in their second academic year (39%), used ChatGPT (81%), had prior AI experience (89%), and reported a monthly family income of ≤₹10,000 (41%). Data derived from baseline proforma responses. Percentages may exceed 100% for AI tool usage due to multiple responses.

Table 2: Distribution of sample according to the knowledge experienced by nursing students.

N=100

Category	Number	Percentage
Inadequate knowledge	4	4%
Moderate knowledge	34	34%
Adequate knowledge	62	62%

The majority of participants (62%) demonstrated adequate knowledge of artificial intelligence, indicating a solid foundational understanding among General Nursing and Midwifery students. Moderate knowledge was

observed in 34%, while only 4% exhibited inadequate knowledge, suggesting overall positive awareness levels with room for enhanced training in advanced AI applications.FIG 1: Illustrates that 93% of students have moderate attitude towards artificial intelligence, 6% have positive attitude and 1% have negative attitude towards artificial intelligence.

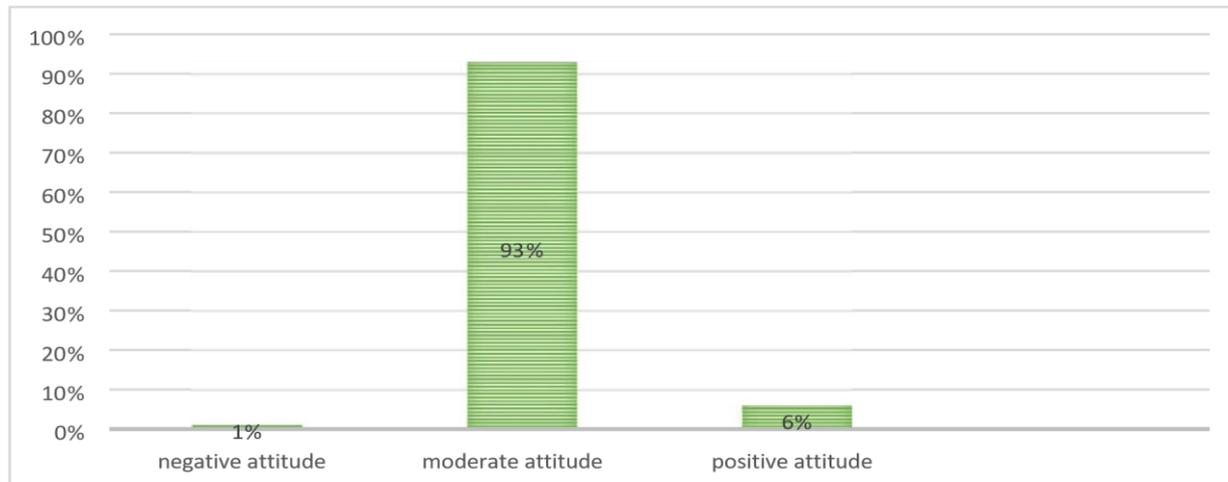**Figure 1: Distribution of sample according to the attitude of nursing students.**

Table 3: Distribution of sample according to the practice of nursing students.

N=100

Category	Number of students	Percentage
Inadequate practice	14	14%
Moderate practice	80	80%
Adequate practice	6	6%

Table 3 illustrates that 80% have moderate practice in artificial intelligence, 14% have inadequate practice, and 6% have adequate practice.

Table 4: Association between demographic variables and knowledge level.

Demographic variable	Chi-square value	Degree of freedom	Table value	Significance
Age	4.3583	4	9.488	Not significant
Gender	2.922	2	5.991	Not significant
Academic Year	16.209	4	9.488	Significant
Previous experience	4.044	2	5.991	Not significant
Type of AI tool used	5.7384	6	12.592	Not significant

Monthly family income	94.907	6	12.592	Significant

Table 4 Illustrates that there is a significant association between the level of knowledge regarding artificial intelligence and selected variables such as academic year and monthly family income. There is no association between level of knowledge and variables such as age, gender, previous experience and type of AI tool used.

Maria Elena M. et al. (2023) conducted a cross-sectional descriptive study assessing knowledge, attitudes, and practices regarding AI among nurses, nursing faculty, and students in Saudi Arabia. Using convenience sampling, 349 online questionnaires were distributed. Participants demonstrated satisfactory knowledge of AI and its healthcare applications, mildly positive attitudes toward AI in nursing, and moderately positive practices and proficiency.

Hasan H. E. et al. (2024) performed a descriptive cross-sectional survey on knowledge, attitudes, and practices toward AI among 875 pharmacy students and faculty members across Jordan, Palestine, Lebanon, Egypt, Saudi Arabia, and Libya. Data were collected via an online questionnaire, showing that 92.6% of participants were aware of AI in practice, though only 39.5% had a good conceptual understanding. Attitudes were positive, with significant positive correlations between AI knowledge, attitudes, and overall KAP scores. The study concluded growing awareness of AI among pharmacy professionals in the Middle East and North Africa, yet notable gaps persist in understanding and adoption.

These findings align with the current study, where adequate knowledge predominates but moderate attitudes and practices suggest a need for targeted educational interventions in nursing curricula to fully leverage AI's potential in healthcare.

RECOMMENDATIONS

- Conduct pre-test and post-test assessments before and after AI-related training sessions to measure actual improvements in knowledge, attitudes, and practices.

- Following the initial KAP assessment, implement an AI awareness or training session, then reassess to evaluate its effectiveness.

- Replicate this study with a larger sample to validate and generalise the findings.

CONCLUSION

This descriptive study assessed knowledge, attitudes, and practices regarding artificial intelligence among 100 General Nursing and Midwifery students using non-probability convenience sampling. Data were collected via a self-administered demographic proforma, a structured knowledge questionnaire, and rating scales for attitudes and practices. Findings revealed that 62% of students had adequate knowledge of AI, 34% moderate knowledge, and 4% inadequate knowledge. Attitudes were positive in 6%, moderate in 93%, and negative in 1%. Practices showed 80% moderate, 14% inadequate, and 6% adequate engagement with AI tools.

REFERENCES

1. Yaseen, M. M. (2025). Assessing nurses' knowledge regarding the application of artificial intelligence among nursing practice. Nursing Research and Practice, 2025, Article 9371969. https://doi.org/10.1155/2025/9371969
2. Wang, X., Fei, F., Wei, J., Huang, M., Xiang, F., Tu, J., Wang, Y., & Gan, J. (2024). Knowledge and attitudes toward artificial intelligence in nursing among various categories of professionals in China: A cross-sectional study. Frontiers in Public Health, 12, Article 1433252. https://doi.org/10.3389/fpubh.2024.1433252
3. Maria Elena M. Mariano, Mahmoud Abdel Hameed Shahin, Shangrila Joy Ancheta, Minimole Vijayan Kunjan, Nasrah Mubarak Al Dossary, Sarah Fahad Al Ojaimi, Sajeda Abdulla Al Qudah, &

Hajer Fayez Al Harbi. (2025). Exploring artificial intelligence knowledge, attitude, and practices among nurses, faculty, and students in Saudi Arabia. Journal Name, 11.

4. Hasan, H. E., Jaber, D., Al Tabbah, S., Lawand, N., Habib, H. A., & Farahat, N. M. (2024). Knowledge, attitude and practice among pharmacy students and faculty members towards artificial intelligence in pharmacy practice: A multinational cross-sectional study. PLoS ONE, 19(3), e0299737. https://doi.org/10.1371/journal.pone.0299737

5. Varol, B. (2025). Artificial intelligence anxiety in nursing students: The impact of self-efficacy. CIN: Computers, Informatics, Nursing, 43(6), 412–419. https://doi.org/10.1097/CIN.0000000000001280

6. Liyanage, H., Liaw, S. T., Jonnagaddala, J., Schreiber, R., Kuziemsky, C., Terry, A. L., & de Lusignan, S. (2019). Artificial intelligence in primary health care: Perceptions, issues, and challenges. Yearbook of Medical Informatics, 28(1), 170–175. https://doi.org/10.1055/s-0039-1677896

7. Russell, R. G., Lovett Novak, L., Patel, M., Garvey, K. V., Craig, K. J. T., Jackson, G. P., Moore, D., & Miller, B. M. (2023). Competencies for the use of artificial intelligence-based tools by health care professionals. Academic Medicine, 98(10), 1185–1192. https://doi.org/10.1097/ACM.0000000000005308

8. Abouzeid, H. L., Chaturvedi, S., Abdelaziz, K. M., Alzahrani, F. A., AlQarni, A. A. S., & Alqahtani, N. M. (2021). Role of robotics and artificial intelligence in oral health and preventive dentistry - Knowledge, perception and attitude of dentists. Oral Health & Preventive Dentistry, 19(4), 193–198. https://doi.org/10.3290/j.ohpd.b1793088

9. Misba N., Sana Siddiqi, Summaira Nasir, & Asghar Khan. (2025). Awareness of the role of artificial intelligence in health care among undergraduate nursing students: A descriptive cross-sectional study. Nurse Education Today, 149, 106673. https://doi.org/10.1016/j.nedt.2025.106673

10. Yaseen, M. M., Alsharif, F. H., Altaf, R. A., Asiri, T. W., Bagies, R. M., Alharbi, S. B., & Altaf, B. A. (2025). Assessing nurses' knowledge regarding the application of artificial intelligence among nursing practice. Nursing Research and Practice, 2025(1), 937196. https://doi.org/10.1155/nrp/937196

11. Xuereb, F., & Portelli, D. J. L. (2024). The knowledge and perception of patients in Malta towards artificial intelligence in medical imaging. Journal of Medical Imaging and Radiation Sciences, 55(3), 456–464. https://doi.org/10.1016/j.jmir.2024.07.002

12. Abuzaid, M. M., Elshami, W., & Fadden, S. M. (2022). Integration of artificial intelligence into nursing practice. Health and Technology, 12(6), 1109–1115. https://doi.org/10.1007/s12553-022-00697-0

13. Abou Hashish, E. A., & Alnajjar, H. (2024). Digital proficiency: Assessing knowledge, attitudes, and skills in digital transformation, health literacy, and artificial intelligence among university nursing students. BMC Medical Education, 24(1), 555. https://doi.org/10.1186/s12909-024-05489-